relationship were derived, it would be a proportional relationship, not an inverse relationship. Kirayama does not teach or suggest "deriving a second bit rate as a percentage of the detected bit rate, which percentage changes "in inverse relation to changes in the detected bit rate."

Applicant takes this opportunity to explain Applicant's invention, which pertains to transmission of digital video signals between an encoder buffer and a decoder buffer. Applicant's invention provides greater efficiency in encoder buffer management by deriving a second output bit rate as a percentage of a first input bit rate in order to provide a tunable delay. The second bit rate percentage varies inversely with changes in the first bit rate such that the contents of the decoder buffer will remain substantially constant.

Kirayama pertains in general to data multiplexing of audio and video signals as used typically in a communication network of an asynchronous transfer mode multimedia system. Although Kirayama does not teach or suggest "deriving a second bit rate as a percentage of the detected bit rate, which percentage changes in inverse relation to changes in the detected bit rate," the Examiner alleges that such a relationship can be derived. The Examiner reaches this conclusion through manipulation of a mathematical expression the Examiner presented in the Office Action of February 2, 1999 at page 3, line 9. The Examiner states that this expression, encoder delay (ED) + buffer delay (BD) = THV (Constant), reflects paragraph 2 of column 10 of Kirayama, and reveals an inverse relation between B1 the

buffer input rate and B2, the buffer write-in bit rate, based on the assumption that ED is equal to the number of bits to be encoded (Bin) multiplied by the buffer write-in rate (B1), in bits/seconds. Applicant respectfully submits that in Kirayama the rate of encoding in the encoder is not equal to (B1). The rate of encoding is normally constant and related to the clock speed of the encoder. Applicant respectfully submits that the mathematical model the Examiner presents does not describe the Kirayama invention.

In a VBR encoder, as described in Kirayama, the magnitude of (Bin) relates solely to the complexity of each individual frame as (Bin) is the number of bits necessary to describe the frame. Considering (Bin) over the period of one frame, the buffer write-in rate (B1) is therefore (Bin) for one frame divided by the time period for one frame. The buffer write-in bit rate is a function of the number of bits in the frame and not a function of (Bin) divided by the encoding rate, as the Examiner alleges on page 4, line 3 of the June 30, 1999 Office Action. In fact, in VBR encoders, the encoding rate is not the limiting factor and it can be thought of as almost instantaneous. For simple frames, both the time delay for encoding and the bit rate will be small. For more complex frames, the time delay is longer and the encoder output bit rate is higher, i.e. the time delay (ED) is proportional to the buffer write-in bit rate (B1) as a result of the number of bits encoded, not the speed of the encoder. Therefore, using the Examiner's model, Encoder Delay (ED) = (Bin), (which is proportional to B1), multiplied by B1, (which is the encoding rate, not the buffer write-in bit rate.)

Accordingly, the encoder delay is proportional to B1 and given that the buffer read out delay (BD) is inversely related to the encoder delay, because the sum of the delays is a constant, the buffer readout bit rate (B2), must be proportionally, not inversely related to B1 in order to satisfy the Examiner's equation, ED + BD = THV (Constant). For example, a high input rate to the encoder will result in a high encoder delay and a high B1. The buffer delay will be low because it is inversely related to the encoder delay and therefore, the output rate B2 will be high and proportional to B1.

Accordingly, Applicant respectfully submits claims 1-12, and 14 are allowable over the reference of record because Kirayama does not teach an inverse relationship between the buffer input rate and the buffer read out rate, as claimed in the present invention. Therefore entry of this amendment, reconsideration of the rejection, and allowance of all the claims is respectfully requested.

Respectfully submitted,

By Cherie S. Werbel
Cherie S. Werbel, Reg. 40,870
Attorney
(914) 333-9605
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